



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/955,141      | 09/19/2001  | Stephen B. Pollard   | 30004069-2          | 8370             |

7590 12/13/2005  
HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

|          |
|----------|
| EXAMINER |
|----------|

TABATABAI, ABOLFAZL

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2623

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/955,141

Applicant(s)

POLLARD ET AL.

Examiner

Abolfazl Tabatabai

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24, 26-50, 52 and 53 is/are rejected.
- 7) ☒ Claim(s) 25 and 51 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on September 19, 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **Final Action**

### **Response to Amendments/Arguments**

1. Applicant's arguments, see (pages 8-10), filed September 26, 2005, with respect to the rejection(s) of claims 1, 3-6, 8, 9, 11, 12, 14-16, 18-24, 26-30, 32-34, 36-38, 41-50 and 53 under Sengupta et al (U S 6,359,647 B1) in view of Reynolds (U S 5,889,550); claims 2, 7, 31 and 35 over Sengupta et al (U S 6,359,647 B1); Reynolds (U S 5,889,550) and Ulich et al (U S 5,267,329) have been fully considered and are not persuasive. Therefore, This Office Action Made Final).
2. Applicant argues in essence that the prior art does not teach or suggest ' non-camera ' target is not detected.
3. Examiner disagrees and indicates that Sengupta teaches identifying or detecting a target (column 10, line 5 and lines 17-22).
4. Applicant argues in essence that the prior art does not teach or suggest ' field of view boundary '.
5. Examiner disagrees and indicates that Sengupta teaches ' field of view boundary ' (column 7, lines 53-56 and column 8, lines 21-28 and lines 17-22).
6. Applicant argues in essence that the prior art does not teach or suggest ' assess a spatial orientation of a target '.
7. Examiner disagrees and indicates that Reynolds teaches ' assess a spatial orientation of a target ' (column 3, lines 54-65 and column 11, lines 53-61).

## **Claim Rejections - 35 USC § 103**

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1, 3-6, 8, 9,11,12, 14-16,18-24, 26-30, 32-34,36-38, 41-50 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sengupta et al (U S 6,359,647 B1) in view of Reynolds (U S 5,889,550).

Regarding claim 1, Sengupta discloses target viewing apparatus comprising a plurality of spaced electronic viewing cameras for viewing a predetermined region and for providing respective image signals (fig. 1 elements 101; 102 and column 10, lines 13-22), the field of view of at least two viewing cameras overlapping in at least a part of said region (column 7, lines 53-56), identification means for identifying or detecting a

Art Unit: 2623

target object within said part of said region (column 2, lines 45-50 and column 10, lines 3-7 ) and, control means responsive to said identifying means for selecting an image signal from a selected one of said at least two cameras (column 3, lines 23-28).

However, Sengupta is silent about the specific details wherein said control means includes means for assessing the spatial orientation of the target and selection means arranged for selecting the said one camera at least partly upon the assessed spatial orientation.

In the same field of endeavor (camera tracking system), however, Reynolds discloses camera tracking system comprises control means includes means for assessing the pose of the target and selection means arranged for selecting the said one camera at least partly upon the assessed pose (column 3, lines 54-65 and column 11, lines 53-57).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use assessing the pose of the target as taught by Reynolds in the system of Sengupta because, Reynolds provides Sengupta an improved advanced camera tracking system includes a motion capture system for recording two-dimensional projections of recording camera's locating in three-dimensional space using a plurality of viewer cameras positioned at different sightlines around the recording camera and which track the 3D position of a patterned geometric target mounted to recording camera. This system provides accurate 3D tracking of the recording camera in a non-invasive manner.

Claim 3 is similarly analyzed as claim 1 above.

Regarding claim 4, Sengupta, discloses apparatus according to claim 2 and including means for determining parameters associated with the target and/or other parts of the said part of said region, and for determining the required spatial orientation as a function thereof (column 8, lines 21-28).

Claim 5 is similarly analyzed as claim 1 above

Regarding claim 6, Sengupta discloses an apparatus according to claim 4 wherein the determined parameters include at least one of target location, velocity/speed, and target environment (column 5, lines 30-33).

Claim 8, is similarly analyzed as claim 6 above.

Regarding claim 9, Sengupta discloses an apparatus according to claim 1 wherein said assessing means includes means for determining the location of the target in relation to a map of the region and for assessing the spatial orientation at least in part in dependence thereon (column 5, lines 30-36).

Regarding claim 11, Sengupta discloses an apparatus according to claim 10 wherein the further camera is arranged for viewing substantially all of the predetermined region (column 7, lines 53-56).

Regarding claim 12, Sengupta discloses apparatus according to claim 10 wherein said assessing means includes means for measuring a visible characteristic of the target and for assessing the spatial orientation at least in part in dependence thereon (column 6, lines 51-64).

Regarding claim 14, Sengupta disclose apparatus according to claim 10 wherein the target is specified to have a predetermined general three dimensional

Art Unit: 2623

shape, said assessing means includes means for detecting a two dimensional image shape derived therefrom and for assessing the spatial orientation at least in dependence thereon (column 5, lines 19-36).

Regarding claim 15, Sengupta apparatus according to claim 14 wherein the target has a specified rigid shape (column 4, lines 8-13).

Regarding claim 16, Sengupta apparatus according to claim 14 wherein the target has a specified flexible shape and the assessing means includes means for modeling the flexible shape and matching a two dimensional image shape thereto, whereby to assess the spatial orientation (column 5, lines 30-36).

Regarding claim 18, Sengupta discloses an apparatus according to claim 1 including means for controlling the plurality of cameras to track the target as it moves between the fields of view of different cameras (column 3, lines 8-22).

Regarding claim 19, Sengupta discloses an apparatus according to claim 18 arranged such that not all the of the plurality of cameras are simultaneously active, but wherein at least one of said at least two cameras is activated in the presence of said target in the said part of said region (column 3, lines 23-30).

Regarding claim 20, Sengupta discloses an apparatus according to claim 19 wherein at least said two cameras are activated in the presence of said target in the said part of said region (column 3, lines 23-30).

Regarding claim 21, Sengupta discloses an apparatus according to claim 20 wherein selection of said one camera is by selection of its image signal (column 3, lines 23-30).

Regarding claim 22, Sengupta discloses apparatus according to claim 1 wherein selection of said one camera is affected by selective activation thereof (column 3, lines 31-37).

Regarding claim 23, Sengupta discloses an apparatus according to claim 1 wherein the presence of the target is initially identified from at least one said image signal by detection of movement (column 4, lines 16-26).

Regarding claim 24, Sengupta apparatus according to claim 1 wherein the presence of the target is initially identified from at least one said image signal by detection of a predetermined colour, hue, texture and/or shape (column 4, lines 8-13).

Regarding claim 26, Sengupta apparatus according to claim 1 wherein the control means is arranged to alter the mode of identifying the target after an initial identification thereof (column 4, lines 22-26).

Regarding claim 27, Sengupta discloses an apparatus according to claim 1 wherein said selected camera is a video camera capable of continuous production of a said image signal (fig. 1 elements 101,102 and 103).

Regarding claim 28, Sengupta discloses an apparatus according to claim 1 wherein said selected camera is a digital photographic camera capable of providing image signals at discrete intervals (column 3, lines 23-30).

Regarding claim 29, Sengupta discloses apparatus according to claim 1 and including means for displaying and/or recording the image signal from said selected camera (column 4, lines 22-26).

Claim 30, is similarly analyzed as claim 1 above.



Claim 32, is similarly analyzed as claim 3 above.

Claim 33, is similarly analyzed as claim 5 above.

Claim 34, is similarly analyzed as claim 6 above.

Claim 36, is similarly analyzed as claim 8 above.

Claim 37, is similarly analyzed as claim 9 above.

Claim 38, is similarly analyzed as claim 12 above.

Claim 41, is similarly analyzed as claim 14 above.

Claim 42, is similarly analyzed as claim 15 above.

Claim 43, is similarly analyzed as claim 16 above.

Claim 44, is similarly analyzed as claim 18 above.

Claim 45 is similarly analyzed as claim 19 above.

Claim 46, is similarly analyzed as claim 206 above.

Claim 47, is similarly analyzed as claim 21 above.

Claim 48, is similarly analyzed as claim 22 above.

Claim 49, is similarly analyzed as claim 23 above.

Claim 50, is similarly analyzed as claim 24 above.

Claim 53, is similarly analyzed as claim 29 above.

**10.** Claims 2, 7, 31 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sengupta et al (U S 6,359,647 B1) and Reynolds (U S 5,889,550) as applied to claims 1 and 30 above and further in view of Ulich et al (U S 5,267,329).

Regarding claim 2, Sengupta and Reynolds are silent about the specific details regarding an apparatus according to claim 1 wherein the selection means is arranged

for selecting the said one camera to which the target is judged to present a pose nearest to a required pose.

In the same field of endeavor (target detection), however, Ulich discloses process for automatically detecting and locating a target from a plurality of two dimensional images comprises the selection means is arranged for selecting the said one camera to which the target is judged to present a pose nearest to a required pose (column 4, lines 22-29).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use target is judged as taught by Ulich in the system of Sengupta because, Ulich provides Sengupta an improved advanced system for detecting and locating a target from a plurality of two dimensional images. This system includes some or all of the following steps such as noise, reduction, spatial filtering, and noise parameter extraction, localization, recognition, range and sub-image mosaic generation.

Regarding claim 7, Sengupta and Reynolds are silent about the specific details regarding an apparatus according to claim 1 wherein the selection means comprises means for confirming that target is not excessively obscured from the view of the camera to be selected.

In the same field of endeavor (target detection), however, Ulich discloses process for automatically detecting and locating a target from a plurality of two-dimensional images comprises the selection means comprises means for confirming that target is not 24-27).

Art Unit: 2623

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use confirmation step as taught by Ulich in the system of Sengupta because, Ulich provides Sengupta an improved advanced system for detecting and locating a target from a plurality of two dimensional images. This system includes some or all of the following steps such as noise, reduction, spatial filtering, noise parameter extraction, localization, recognition, range and sub-image mosaic generation.

Claim 31, is similarly analyzed as claim 2 above.

Claim 35, is similarly analyzed as claim 7 above.

**11.** Claims 10,13, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sengupta et al (U S 6,359,647 B1) and Reynolds (U S 5,889,550) as applied to claims 1 and 30 above and further in view of Pingali (U S 6,005,610).

Regarding claim 10, Sengupta and Reynolds are silent about the specific details regarding an apparatus according to claim 1 wherein said assessing means includes means for analysing the signal from a said viewing camera viewing the target, or a further camera viewing the target, and for assessing the pose at least in part in dependence thereon.

In the same field of endeavor (target detection), however, Pingali discloses audio visual object localization and tracking system comprises assessing means includes means for analysing the signal from a said viewing camera viewing the target, or a further camera viewing the target, and for assessing the pose at least in part in dependence thereon (column 4, lines 28-32).

Art Unit: 2623

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use analysing the signal as taught by Pingali in the system of Sengupta because, Pingali provides Sengupta an improved advanced system for object localization and tracking and in particular, a system and process for integrating both audio and visual cues to localize and track a moving object, typically a person, in real-time.

Regarding claim 13, Sengupta and Reynolds are silent about the specific details regarding an apparatus according to claim 12 wherein said visible characteristic is a flesh-tone area, said assessing means includes means for measuring the area and for assessing the pose at least in part in dependence thereon.

In the same field of endeavor (target detection), however, Pingali discloses audio visual object localization and tracking system comprises visible characteristic is a flesh-tone area, said assessing means includes means for measuring the area and for assessing the pose at least in part in dependence thereon (column 7, lines 18-29).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use flesh-tone as taught by Pingali in the system of Sengupta because, Pingali provides Sengupta an improved advanced system for object localization and tracking and in particular, a system and process for integrating both audio and visual cues to localize and track a moving object, typically a person, in real-time.

Claim 39, is similarly analyzed as claim 10 above.

Claim 40, is similarly analyzed as claim 13 above.

**12.** Claims 17 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sengupta et al (U S 6,359,647 B1) and Renolds (U S 5,889,550) as applied to claims 1 and 30 above and further in view of League et al (U S 5,668,739).

Regarding claim 17, Sengupta and Reynolds are silent about the specific details regarding an apparatus according to claim 1 wherein the assessing means is arranged so that the manner of assessing pose can change over time.

In the same field of endeavor (target detection), however, League discloses system for tracking objects using a detection comprises assessing means is arranged so that the manner of assessing pose can change over time (column 12, lines 49-55).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use over-time as taught by Peague in the system of Hardin because, Peague provides an improved advanced system for rejecting noise to prevent false detections.

Claim 52, is similarly analyzed as claim 17 above.

### **Allowable Subject Matter**

**13.** Claims 25 and 51 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**14.** The following is an Examiner's statement of reasons for allowance.

The prior art of record fails to teach or suggest, the selection means selects the said one camera based solely on the said one camera having a field of view that includes a region which the alarm sensor is disposed, and switch means for enabling an operator

to switch from selection of an image provided by the said one camera to an image provided by another camera of said viewing cameras.

### **Conclusion**

**15. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### **Contact Information**

**16.** Any inquiry concerning this communication or earlier communications from the Examiner should be directed to ABOLFAZL TABATABAI whose telephone number is (571) 272-7458.

The Examiner can normally be reached on Monday through Friday from 9:30 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Jingge Wu, can be reached at (571) 272-7429. The fax phone

Art Unit: 2623

number for organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Abolfazl Tabatabai

Patent Examiner

Group Art Unit 2623

December 9, 2005

*A-Tabatabai*

JINGGE WU  
PRIMARY EXAMINER

